

7

# Issue Brief

Order Code IB87079

ISRAEL AND NUCLEAR WEAPONS

Updated August 8, 1988



by

Warren H. Donnelly

Senior Specialist, ENR

Congressional Research Service

## CONTENTS

### SUMMARY

### ISSUE DEFINITION

### BACKGROUND AND ANALYSIS

#### Background

- U.S. Policy

- Nuclear Weapons Materials

- Israel's Nuclear Weapons Status

- Israel's Non-Proliferation Status

  - An ambiguous policy

  - Israel's non-proliferation commitments

  - Israel's position on IAEA safeguards

#### Analysis

- Factors Affecting Israel's Position on Nuclear Weapons

- Saudi Missile Complication

- Implications for U.S. Policies

### CHRONOLOGY

### FOR ADDITIONAL READING

## ISRAEL AND NUCLEAR WEAPONS

SUMMARY

For years there has been speculation whether Israel has nuclear weapons. This Israel has not denied. Instead, Israel says it will not be the first nation to introduce nuclear weapons in the Middle East. Israel is known to have a powerful research type reactor able to produce enough plutonium to make several warheads a year. It has not permitted U.S. or international inspection of this reactor since 1969, operates it in secret, and has yet to take the no-nuclear weapons pledge of the Non-Proliferation Treaty. On the other hand, Israel has introduced resolutions at the U.N. proposing negotiation of a nuclear weapons free-zone for the Middle East.

Israel's ambiguous position has enabled the United States to avoid possible problems in its relations with Israel, in its peace initiatives in the Middle East, and generally, in its goal of the prevention of the proliferation of nuclear weapons. All of these would be affected if Israel were to announce a nuclear arsenal. U.S. non-proliferation policy would be weakened if the United States were seen to accept such a situation while still keeping pressure on Pakistan not to make or test atom bombs.

## ISSUE DEFINITION

The further spread, or proliferation, of nuclear weapons would threaten U.S. national security and global stability. The more countries that have nuclear weapons, particularly in unstable regions, the greater the risk that some might be used in a local conflict which, in a worst case, might trigger events that would cause conflict between the United States and the Soviet Union and perhaps nuclear war. Israel is one of several countries which refuse to take a no-nuclear weapons pledge. It has certain nuclear facilities not open to international inspection to verify their peaceful use, and there are public suspicions that it has nuclear weapons.

At issue is the further evolution of Israel's nuclear situation during the 100th Congress and the responses of the Reagan Administration.

## BACKGROUND AND ANALYSIS

The following background and analysis is based on published information. The author has had no access to classified or security information.

### **Background**

This issue brief is one of a series on the proliferation situation of several states that have not taken the no-nuclear weapons pledge of the Non-Proliferation Treaty and that are seen close to or at the threshold of nuclear weapons. Related CRS Issue Briefs include those on India (IB86125), Pakistan (IB86110) and South Africa (IB87199). Israel's interest in a large nuclear power plant is discussed in IB85166 (archived).

### **U.S. Policy**

Ever since the United States dropped atom bombs on Hiroshima and Nagasaki in 1945 to end the war with Japan, United States policy has sought to limit the further spread, or proliferation of nuclear weapons. Congress in the Nuclear Non-Proliferation Act of 1978 implicitly extended the definition of proliferation to include the spread of ability to produce plutonium and uranium-235.

### **Nuclear Weapons Materials**

The basic materials for nuclear weapons or explosives are plutonium and uranium-235. Plutonium is made by exposing uranium to neutrons in a nuclear reactor (irradiation), where some U-238 atoms capture neutrons and are transmuted into plutonium, then removing the irradiated uranium (spent fuel), chopping it up and dissolving it to separate the plutonium from residual uranium and intensely radioactive wastes (reprocessing). Uranium-235 exists in nature, mixed with U-238. Normal uranium is 0.7% U-235, and is not a nuclear explosive material. However, the U-235 can be extracted by various processes (enrichment) and concentrated to 90% U-235

or better for weapons use, or for fuel for certain type nuclear power plants -- mainly those used for naval propulsion. An ability to produce plutonium or highly enriched uranium (90% U-235) brings a country to the threshold of nuclear weaponry. This is recognized by Congress in the Nuclear Non-Proliferation Act of 1978.

### Israel's Nuclear Industrial Base

Israel has a powerful testing reactor at Dimona in the Negev desert that was supplied by France in the late 1950s and is operated in secret. It is generally presumed Israel also has a small reprocessing plant there and that the Dimona facility is producing plutonium. However, Israel provides no information about how much plutonium is produced or what it is used for.

In a series of articles and reports, Professor Gary Milhollin has raised questions about how Israel has used heavy water supplied to it by other countries, Norway in particular. This has led to a Norwegian request to Israel for inspection of Norwegian-supplied heavy water and its use, which could cause difficulties for Israel if the heavy water has been used in the Dimona reactor to make plutonium.

In May 1988, an Israeli spokesman declined to comment on a report that some 12 metric tons of heavy water may have been obtained from Norway via Romania in 1986, but said that Israel hopes negotiations can be completed with Norway and that inspection rights for this material will be transferred to the International Atomic Energy Agency. (The Wall Street Journal, May 5, 1988: 28)

According to the State Department, the United States has consistently urged Israel to adhere to the NonProliferation Treaty and to accept IAEA safeguards on all of its nuclear activities, including what Israel does with its heavy water. (Congressional Record, Jan. 25, 1988: E:18)

As for uranium-235, Israel has no known enrichment capability, but it has been working to develop laser isotope separation that if successful could provide a new source of weapons materials.

### Israel's Nuclear Weapons Status

For years there has been speculation that Israel has nuclear weapons, either ready to use or ready for quick assembly. However, Israel is not known to have tested a nuclear weapon and has never acknowledged that it has any.

The United Nations Secretary General has twice reported on Israel's nuclear weapons situation to the General Assembly at its request. In 1981 he submitted a study by a group of experts which reported that on the basis of "available authoritative information," it was "unable to conclude definitely whether or not Israel was in possession of nuclear weapons." It noted significant indications that Israel had reached the threshold of nuclear weapons at least a decade earlier, and emphasized it did not doubt that Israel could make nuclear weapons within a "very short time." More recently, on Oct. 16, 1987, he submitted a second report,

prepared by the UN Department of Disarmament Affairs (Report A/42/581). Giving substantial attention to a report in the London Sunday Times of Oct. 5, 1986, alleging Israel had nuclear weapons, this second report concluded that Israel's nuclear activities, the ambiguity of its statements about its nuclear policy, its refusal either to deny or to confirm reports of its nuclear potential, and its unwillingness to adhere to the nonproliferation treaty or otherwise accept safeguards on all of its nuclear activities together have "... conveyed a strong impression that it does in fact have the potential to produce nuclear weapons: "... circumstantial evidence, together with the factors just cited, would seem to indicate that Israel has developed the necessary technology and has the means to manufacture nuclear weapons, if it so chooses."

Unofficial speculations about the size of Israel's alleged nuclear arsenal vary from perhaps 20-25 weapons on one hand (Spector, *The New Nuclear Nations*, p. 136) to "at least 100 nuclear weapons" (Anthony Cordesman, *NBC Nightly News*, July 30, 1985). Also in May 1985, *Aerospace Daily* cited reports that since 1981 Israel had deployed Jericho-II missiles with nuclear warheads in the Negev Desert (Spector, *The New Nuclear Nations*, p. 139).

Several incidents often cited in speculations about Israel's nuclear situation include an alleged diversion of highly enriched uranium to Israel from an American company -- NUMEC -- in the mid-1960s (Spector, *Going Nuclear*, p. 131); the diversion to Israel of some 200 tons of uranium oxide from a small freighter in 1968, the "Plumbat affair" (Davenport, et al.); and in 1979 a strange flash observed by a U.S. satellite near South Africa, which some claimed was caused by a small nuclear test with some speculation that Israel may have been involved (Adams, p. 188). Note, however, that a panel of experts convened by the Office of Science and Technology Policy determined that the event probably was not a nuclear test.

A major story on Israel's nuclear industrial base and alleged weapons came in October 1986 in two articles in the London Sunday Times. Based on information from an Israeli technician, Mordechai Vanunu, who had worked at Dimona, the Observer estimated that Israel was producing 40 kilograms of plutonium annually at Dimona, enough for about 10 bombs, and had an arsenal of 100 to 200 nuclear weapons. The Israeli government called the articles sensationalistic. On Sept. 29, 1986, Vanunu disappeared from London. After some weeks of rumors, the Israeli government announced he was in custody and in November 1986 charged him with aiding an enemy in wartime and with aggravated espionage. He was tried and on Mar. 27, 1988, was sentenced to 18 years imprisonment.

#### Israel's Non-Proliferation Status

**An ambiguous policy.** As noted, Israel has often said that it will not be the first nation to introduce nuclear weapons into the Middle East. Nonetheless, in 1981, former defense minister Moshe Dayan was quoted as saying Israel had the capability to quickly make nuclear weapons (*The New York Times*, June 25, 1981, p. 1).

Israel's non-proliferation commitments. Israel is an active member of the International Atomic Energy Agency. It has yet to take the no-nuclear weapons pledge of the Non-Proliferation Treaty despite U.S. pressure. It ratified the Limited Test Ban Treaty and has signed but not yet ratified the Convention on Physical Security for Nuclear Materials. Israel had an agreement for nuclear cooperation with the United States in the 1950s but it expired and Israel will not agree to conditions specified by Congress in the Nuclear Non-Proliferation Act of 1978 for a new agreement.

Israel is the only country to have attacked a civil nuclear facility to prevent its operation. In June 1981, Israel bombed and damaged Iraq's powerful research reactor before it started up. Iraq was, and remains an NPT state and the reactor and its fuel were under IAEA safeguards. Nonetheless, Israel said that Iraq would have used the reactor to provide nuclear weapons materials, and that IAEA safeguards and world counteractions to a diversion of nuclear materials were not reliable enough to protect Israel's security.

Since the attack Israel has introduced resolutions in the U.N. proposing the negotiation of a nuclear weapons free zone in the Middle East along the lines of the Treaties of Tlatelolco (for Latin America) and Rarotonga (for the Pacific). Some U.N. members supported these proposals, but there has been little support from the Middle East. Also the Middle East states did not wish to negotiate with Israel because to do so would imply recognition of Jerusalem.

Following Israel's attack on Iraq's reactor in 1981, the U.N. Security Council in resolution 487 (June 19, 1981) urgently called on Israel to submit all of its nuclear facilities to IAEA for safeguards.

More recently, in October 1987, the General Conference of the IAEA reiterated this demand for safeguards; requested the IAEA Director General to report to its Board of Governors and to the next session of the General Conference (September 1988) on "Israel's nuclear capabilities and threat;" and decided to include on the agenda for that conference an item entitled "Israeli nuclear capabilities and threat." (IAEA doc. GC(XXXI)RES/470, Oct. 5, 1987)

The Foreign Relations Authorization Act for FY88 and FY89, P.L. 100-204, provides in Section 704 that the United States suspend its participation in any specialized, technical, or other agency of the United Nations if Israel is "illegally expelled, suspended, denied its credentials, or in any other manner denied its right to participate" until the illegal action is reversed. This combined with increasing Israeli-Arab tensions over the Gaza strip and the West Bank could create serious dangers of an attempt to expel Israel from the Agency at the fall 1988 General Conference and the possibility of U.S. withdrawal.

Israel's position on IAEA safeguards. Israel accepts IAEA safeguards for imported nuclear items, such as the small research reactor at Nahal Soreq, furnished by the United States in the late 1950s. Israel, however, will not accept safeguards for the Dimona reactor, which was supplied by France well before the universal safeguards provision of the NPT took

effect in 1970. Early in the history of Dimona, Israel permitted some U.S. visits, but these did not continue beyond 1969.

### Analysis

#### Factors Affecting Israel's Position on Nuclear Weapons

Of all the countries of proliferation concern, Israel has the most perilous situation. Its neighbors have more troops. Israel has relied upon superior military technology to offset this manpower advantage and, since it was established, Israel several times has been in grave danger. If its enemies believe Israel has nuclear weapons and the means to deliver them, they could be deterred from engaging Israel militarily. This factor would be important if Israel trades territories for peace which would open a whole new chapter in its defense policy. In that case, Israel might wish to rely openly on a nuclear deterrent, or to at least to retain the benefits of uncertainty in surrounding capitals.

The tensions mounting between Israel and its Arab neighbors over the Gaza strip could upset efforts by the United States to quash proposals to expel Israel from the IAEA, which would come to a head at the next IAEA General Conference in September 1988.

There are many arguments supporting Israel's disclosure of a weapons status, and also for continued ambiguity. These are debated in a set of essays published in 1986 by Professor Louis Beres of Purdue University (see For Additional Reading).

A complicating factor is that Israel has no formal treaty with the United States to assure U.S. protection in case of attack, although informal ties between the two countries are strong and the Reagan Administration has been supportive of Israel.

#### The Saudi Missile Complication

A new complication comes with reports that Saudi Arabia was able to hide from U.S. intelligence for more than 2 years that it had Chinese ballistic missiles with a range of more than 1,000 miles. (The Washington Post, Mar. 29, 1988: A1, A13.) Reportedly, the Administration was alarmed that the type of missile supplied had been used by China only to carry nuclear warheads, although Saudi Arabia has categorically denied that it has obtained or ever sought nuclear warheads from the Chinese. The Saudis have refused U.S. requests to inspect the missiles and verify that they do not have nuclear warheads, saying this is a matter of strict confidentiality between Saudi Arabia and China. Officials on Apr. 26, 1988, announced that Saudi Arabia had decided to sign the non-proliferation treaty.

The Administration now is said to fear that Israel may carry out a preemptive strike against the Saudi missiles that would complicate Saudi-U.S. relations and destroy any chance for Arab acceptance of the new U.S.-Middle East peace initiative. If this were to occur before the next general conference of the International Atomic Energy Agency in September



1988, it could strengthen Arab state efforts to expel Israel from the agency, which probably would cause the United States to walk out.

#### Implications for U.S. Policies

Over recent years several American writers have argued that Israel does have nuclear weapons, either assembled or partially assembled and ready for quick final assembly. Leonard Spector of the Carnegie Endowment and David Albright of the Federation of American Scientists are typical. For its part, the Reagan Administration has been cautious in its response to such charges and speculation. There have been no congressional hearings on this matter.

Nonetheless, suspicions that Israel can produce plutonium for nuclear weapons or that it may have a nuclear arsenal present a dilemma for three international U.S. policies -- support for Israel, peace in the Middle East, and non-proliferation. If Israel should announce it has nuclear weapons or if the United States should determine that Israel has them, the United States would have to decide whether to continue military and economic aid to Israel. While U.S. law does not require stopping such aid because a country possesses nuclear weapons (except for Pakistan), to continue U.S. aid if Israel declared nuclear weapons would be seen by some countries as evidence that U.S. support for Israel outweighs U.S. non-proliferation policy, and would weaken U.S. efforts to keep Pakistan and India away from such weapons. Likewise, an acknowledged Israeli arsenal could generate new difficulties for U.S. peace efforts in the Middle East. What assurances and conditions Israel might require to dismantle a nuclear arsenal, what evidence of dismantling Middle East countries might demand, and whether the United States and other countries would be willing to pay Israel's price are questions that would arise if Israel were to abandon its ambiguous position.

On the whole, continuation of present ambiguity probably serves all interests by putting off decisions that would have to be made in Washington and in Middle Eastern and other capitals if Israel were to announce or openly acquire a nuclear arsenal.

Another policy matter raised by some is the difference in U.S. policy towards Pakistan's and Israel's nuclear activities. Both Congress and the Executive Branch continue highly visible pressure on Pakistan to keep it from testing or making atom bombs, whereas there is no comparably visible pressure upon Israel. From a U.S. point of view, such a difference may be justified by Israel's special relation with the United States. However, for some other countries this difference may be seen as an indication that in some circumstances U.S. non-proliferation policy is subordinated to other policy considerations.

#### CHRONOLOGY

09/--/88 --- The 32d IAEA General Conference is to debate "Israeli nuclear capabilities and threat."

- 07/31/88 --- Jerusalem. King Hussein of Jordan, citing the right of the Palestinians to secede from his kingdom, said that Jordan would sever administrative and legal ties with the Israeli-occupied West Bank. (The Washington Post, Aug. 1, 1988: A1)
- 06/29/88 --- Washington. The United States and Israel signed a memorandum of understanding to jointly develop and produce a new defensive missile. (The New York Times, June 30, 1988: A3)
- 04/21/88 --- Israel and the United States signed a memorandum of agreement regarding political, security, and economic cooperation between both countries.
- 04/04/88 --- Israel. An Israeli spokesman declined to comment on a report that some 12 metric tons of heavy water from Norway may have been secretly retransferred to Israel in 1986, but said Israel hopes negotiations can be completed with Norway and that inspection of Norwegian heavy water in Israel can be transferred to the IAEA under a trilateral arrangement. (The Wall Street Journal, May 5, 1988: 28; Nucleonics Week, May 12, 1988: 13)
- 03/29/88 --- Washington. The Washington Post reported that Saudi Arabia was able to hide from U.S. intelligence for more than 2 years its acquisition from China of long-range ballistic missiles capable of carrying nuclear warheads. (The Washington Post, Mar. 29, 1988: A1, A13)
- 03/27/88 --- Jerusalem. Mordechai Vanunu, the Israel nuclear technician who provided information about Israel's Dimona facility to the London Sunday Times in 1986, was sentenced to 18 years imprisonment for treason and espionage. (The New York Times, Mar. 28, 1988: A11)
- 03/24/88 --- Jerusalem. Vanunu was found guilty of treason and espionage for describing the bomb-making operations of Israel's nuclear installation at Dimona. (New York Times, Mar. 25, 1988: A6)
- 01/25/88 --- Representative Hamilton placed in the Congressional Record an article by Gary Milhollin about supply of Norwegian heavy water to Israel (The New York Times, Nov. 25, 1978) and the State Department commented on it. (Congressional Record, Jan. 25, 1988: E17)
- 12/22/87 --- Washington. President Reagan signed into law the Foreign Relations Authorization Act, FY88 and FY89, P.L. 100-204. Section 704 would require the United States to suspend its participation in any specialized, technical, or other agency of the United Nations if Israel is "illegally expelled, suspended, denied its credentials, or in any other manner denied its right to participate..." until the illegal action is reversed.

- 11/25/87 --- Professor Gary Milhollin charged that Israel had been making plutonium in its Dimona reactor with heavy water imported from Norway, and called on Norway to exercise its right to inspect the heavy water to assure it was and had been used for peaceful purposes. (New York Times, Nov. 25, 1987: A27)
- 10/16/87 --- United Nations. The UN Secretary General reported to the General Assembly on Israeli nuclear armament.
- 10/03/87 --- Jerusalem. Israel rejected a Norwegian request to put heavy water supplied by Norway 27 years ago under IAEA inspection. (Jerusalem Domestic Service, Oct. 3, 1987; in FBIS, Nuclear Edition, Jan. 1, 1988: 44)
- 09/25/87 --- The IAEA 31st General Conference in resolution 470 demanded that Israel place all of its nuclear facilities under IAEA safeguards; requested the Director General to report to that session on this matter; and placed it on the agenda for the 32d General Conference. The vote was 48 to 29 with 12 abstentions.  
Israel rejected the resolution, saying that "The issue is purely political, contrary to the technical character of the Agency... and irrelevant to its professional functions. It constitutes an unacceptable discrimination against Israel." (IAEA doc. GC(XXXI)/283, 09/25/87)
- 09/15/87 --- Arab members of the IAEA are expected to try again to exclude Israel from the agency at the September General Conference of the IAEA. (New York Times, Sept. 16, 1987: p. A5)
- 07/30/87 --- Jerusalem. The treason and espionage trial of Mordechai Vanunu opened amid tight security.
- 07/29/87 --- A Hebrew language commentary by Radio Moscow announced that continuation of Israel's Jericho II medium range missile project "will force the Soviet Union to carry out defensive and political steps." A very senior Israeli policymaker responded by viewing the warnings as both worrisome and healthy. The report is worrisome because it threatens Soviet supply of similar weapons to Syria while healthy because it indicated Moscow's interest in pursuing dialogue with Israel about curbing strategic weapons in the Middle East. (New York Times, July 29, 1987: A11)
- 07/02/87 --- Norway will send a senior official and a nuclear physicist to Israel to renew a request for independent inspection of 20 tons of Norwegian heavy water sold to Israel in 1960. (Nucleonics Week, July 2, 1987: 13)
- 05/03/87 --- Oslo. Norway said Israel had refused to allow an independent inspection aimed at establishing whether Norwegian heavy water might have been used by Israel to make nuclear weapons. (The Washington Post, May 3, 1987: A28)

- 04/10/87 --- Oslo. News report that Norwegian Prime Minister Gro Harlem Brundtland had asked Israel to an inspection of heavy water supplied to Israel in 1960. Government sources said if Israel refused inspection, Norway would consider this a breach of the supply contract and might attempt to recall the material. (The Washington Times, Apr. 10, 1987: 6A)
- 04/02/87 --- Washington. In a report to Congress, the State Department said that Israel had provided large-scale military assistance to South Africa in violation of an international arms embargo. (The New York Times, Apr. 3, 1987: A3)
- 02/17/87 --- Washington. Per Paust, spokesman for the Norwegian Foreign Ministry, said that Norway had decided to ask Israel to let international inspectors inspect Norwegian supplied heavy water held by Israel. (The New York Times, Feb. 17, 1987: A10; The Wall Street Journal, Feb. 17, 1987: 4; also Nucleonics Week, Feb. 19, 1987: 8)
- 12/04/86 --- The UN General Assembly requested the Secretary General to update his 1981 Study on Israeli Nuclear Armament and submit it to the General Assembly 42d session in 1987.
- 11/28/86 --- Tel Aviv. Mordechai Vanunu was charged with aiding an enemy in war and could face a death sentence, according to the Justice Ministry. Vanunu, whose case is one of the most severe security breaches in Israel's history, also was charged with aggravated espionage. (The Washington Post, Nov. 29, 1986: A16)
- 11/10/86 --- Washington. Israel allegedly violated a confidential pledge to Norway under which it is illegal for Israel to make atomic bombs, and may have violated a similar pledge to the United States, according to a report released by Gary Milhollin, a University of Wisconsin law professor. At issue is Israel's presumed use of Norwegian heavy water to operate the Dimona reactor as a plutonium producer (see also the Wall Street Journal, Nov. 10, 1986: 27; and the Washington Post, Nov. 10, 1986: A26; and Nov. 25, 1987: A27).
- 11/06/86 --- Report that Israeli Prime Minister Yitzhak Shamir rejected calls for information on the Vanunu case, saying that the government has its own considerations in avoiding public comment. U.S. ambassador Thomas Pickering said the United States would not take a position on Israel's alleged nuclear arsenal or alleged role in the Vanunu affairs. (Nucleonics Week, Nov. 6, 1986: 14)
- 10/28/86 --- Washington. News reports Vanunu had been abducted from London to Israel. (The New York Times, Oct. 29, 1986: A5; The Washington Post, Oct. 29, 1986: A1)

- 10/21/86 --- Jerusalem. In an interview, Deputy Prime Minister and Foreign Minister Shimon Peres said Israel was not the world's sixth nuclear power, as the London Sunday Times had stated. He did not specifically rule out any of the paper's claims about Israel's nuclear capacity, but said most were fanciful. (Jerusalem Domestic Service, Oct. 22, 1986)
- 10/12/86 --- The London Sunday Times quoted Professor Francis Perrin, "father of the French bomb," as admitting that the French government had secretly supplied Israel with nuclear bomb technology, contradicting 30 years of official denials. He recalled the 1957 French agreement to build a reactor and a reprocessing plant for Israel.
- 10/06/86 --- Tel Aviv. Prime Minister Shimon Peres said today that a report describing his country as the world's sixth-ranked nuclear power was "sensationalist." He restated Israel's position that it will not be the first to introduce nuclear weapons into the Middle East. (The New York Times, Oct. 7, 1986: A6)
- 10/05/86 --- The London Sunday Times in a major feature story quoted an Israeli nuclear technician, Mordechai Vanunu, as saying the Dimona reactor and reprocessing plant could produce 40 kilograms of plutonium a year, enough for 10 bombs, and that Dimona was also producing materials for thermonuclear weapons.
- 12/16/85 --- New York. The U.N. General Assembly by a vote of 86 to 23, called on all states to isolate Israel because it is not "a peaceful state." (The New York Times, Dec. 17, 1985: A28)
- 10/08/85 --- President Reagan approved the International Security and Development Cooperation Act of 1985 (P.L. 99-83). Section 402 conditioned U.S. funding for the IAEA for FY86 and FY87 upon a determination by the Secretary of State that Israel is not being denied its right to participate in Agency activities.
- 09/23/85 --- Israel informed the 18th IAEA General Conference that it holds all states must refrain from attacking or threatening to attack nuclear facilities devoted to peaceful purposes and that IAEA safeguards were evidence of peaceful operation. Within this context, Israel reconfirmed that it would not attack or threaten to attack any nuclear facility devoted to peaceful purposes either in the Middle East or anywhere else.
- 07/30/85 --- Richard Sale, a writer for Aerospace Daily, said a nuclear warhead for the Jericho-11 missile was developed at the Weizman Institute and that U.S. scientists had been involved. Anthony Cordesman, an expert on Middle East military affairs, said Israel had at least 100 nuclear weapons, possibly 140. (NBC Nightly News, July 30, 1985)

- 05/--/85 --- Aerospace Daily reported that since 1981 Israel had deployed nuclear armed Jericho--II missiles in the Negev desert and that the missiles were only part of a much larger Israeli nuclear force. (Aerospace Daily, May 1 and May 17, 1985)
- 05/16/85 --- Federal prosecutors indicted an export broker for illegally exporting to Israel 810 high speed electronic switches -- krytrons -- between 1980 and 1983. (The New York Times, May 17, 1985).
- At U.S. request, Israel agreed to return the Krytrons not in use and agreed to provide assurances that the units kept would not be used for nuclear purposes. (The New York Times, May 17, 1985)
- 03/26/85 --- Ariel Sharon, Israel's Ministry of Industry and former minister of defense, said that if Iraq built a nuclear reactor that threatened Israel's security, Israel would bomb it. (Jerusalem Domestic Service, Mar. 26, 1985)
- 12/10/84 --- Washington Times reported that Israeli Prime Minister Shimon Peres assured French President Mitterand that Israel would not attack Iraq's nuclear reactor if France rebuilt it.
- 09/28/84 --- The IAEA General Conference again passed a resolution calling for an Israeli pledge not to attack nuclear facilities. Before the conference, the U.S. said it would withdraw again if Israel was sanctioned (Energy Daily, Oct. 10, 1984)
- 05/02/84 --- Israel's Prime Minister stated Israel had no policy of attacking nuclear facilities and certainly had no intention of attacking facilities dedicated to peaceful purposes.
- 04/--/84 --- Some 47 metric tons of depleted uranium were transferred to Israel from Luxembourg without notice to the IAEA. (Spector, The New Nuclear Nations, p. 141)
- 10/20/83 --- The IAEA General Conference passed an Iraqi-sponsored resolution calling on Israel "to withdraw forthwith its threat to attack and destroy nuclear facilities in Iraq and other countries." Israeli delegates said it was not the policy of the Israeli government to attack nuclear facilities. Israel was seated at the 16th IAEA General Conference only after strong pressure from the United States including a threat to again withdraw.
- 09/24/82 --- The IAEA General Conference illegally rejected Israel's credentials. The United States delegation walked out in protest, and said the United States would reassess its policy regarding participation in the IAEA. (Israel, however, continued its normal participation in IAEA activities.)

- 06/24/81 --- Former Israeli Defense Minister Moshe Dayan said Israel has the capacity to produce nuclear weapons, and could manufacture bombs quickly should the Arabs do so.
- 06/19/81 --- The U.N. Security Council called on Israel to submit all its nuclear facilities to IAEA safeguards. (Resolution no. 487)
- 06/07/81 --- Israel bombed Iraq's research reactor near Baghdad, claiming the reactor would be used to make nuclear weapons.
- 08/13/80 --- Report that the power of the Dimona reactor has been substantially increased -- from 25 MWt to 75 MWt. (Foreign Report, Aug. 13, 1980)

#### FOR ADDITIONAL READING

- Adams, James. The unnatural alliance. New York, Quartet books, 1984. 218 p.
- Albright, David. Israel's nuclear arsenal. F.A.S. public interest report, May 1988: 4-6.
- Barnaby, Frank. The nuclear arsenal in the Middle East. Technology review, May/June 1987: 27-34.
- Beres, Louis Rene (ed.). Security or Armageddon: Israel's nuclear strategy. Lexington, MA, Lexington Books, 1986. 242 p.
- Cohen, Avner and Benjamin Frankel. Israel's nuclear ambiguity. Bulletin of the atomic scientists, March 1987: 15-19.
- Davenport, Elaine. Eddy, Paul and Gillman, Petter. The Plumbat affair. Philadelphia and New York, J.B. Lippincott Co., 1978. 192 p.
- Feldman, Shai. Israeli nuclear deterrence. New York, Columbia University press, 1982.
- Gaffney, Mark. Prisoners of fear: A retrospective look at Israeli nuclear program. American-Arab affairs, fall 1987: 75-96.
- Israeli nuclear armament. Report of the Secretary General. New York, United Nations, Oct. 16, 1987 (A42/581). 16 p.
- Milhollin, Gary. Heavy water cheaters. Foreign policy, winter 1987-88: 100-128. (Reprinted in the Congressional Record, Jan. 25, 1988: E17)
- Israel's nuclear shadow. Nov. 10, 1986. 30 p. (Available from the author at 1350 New York Ave., NW, Suite 300, Washington, D.C. 20005)
- New nuclear follies. The New York times, Nov. 25, 1987: A27.

Newsom, David D. Washington's double standard. The Christian science monitor, Dec. 30, 1987: 12.

Pry, Peter. Israel's nuclear arsenal. Boulder, Westview Press, 1984. 150 p.

Spector, Leonard S. Going nuclear. The spread of nuclear weapons 1986-1987. Cambridge, Ballinger Publishing Co., 1987. 370 p.

----- Israel's A-arms: a sacred cow. New York times, Mar. 17, 1988: A31.

Twersky, David. Is silence golden? Vanunu and nuclear Israel. Tikkun, January-February 1988: 39-41.

U.S. Library of Congress. Congressional Research Service. Israeli-American relations, by Ellen Laipson. [Washington] 1982. (Updated regularly)

CRS Issue Brief 82008

----- Israel's interest in nuclear power, by Warren H. Donnelly. [Washington] Dec. 11, 1987. 11 p.

CRS Issue Brief 85166